

CLAIMS

What is Claimed:

1. In a mobile station including a preferred roaming list, a system
2 acquisition procedure comprising the steps of:
maintaining a list of unusable wireless communications systems, each entry in
4 the list of unusable wireless communications systems including a system identifier
and corresponding avoidance criterion;
6 selecting a wireless communications system from the preferred roaming list in
accordance with a predetermined system acquisition sequence and repeating the step
8 of selecting until a usable system is selected; and
attempting to acquire and register with the selected wireless communications
10 system,
wherein the selected wireless communications system is unusable if the list of
12 unusable wireless communications systems includes a corresponding system identifier
and the corresponding avoidance criterion is satisfied.
2. The method of Claim 1 wherein each system identifier identifies at
2 least one wireless communications system.
3. The method of Claim 2 wherein each wireless system identifier
2 includes a frequency.
4. The method of Claim 1 wherein each wireless system identifier
2 includes a SID/NID pair that uniquely identifies a wireless communications system.
5. The method of Claim 1 wherein the step of maintaining comprises the
2 steps of:
detecting a communications failure with a wireless communications system;
4 and

6 adding a new entry to the list of unusable wireless communications systems,
the new entry including an identifier of the failed wireless communications system
and corresponding avoidance criterion.

2 6. The method of Claim 5 wherein the step of maintaining further
comprises the steps of:

4 assigning an avoidance duration to the detected system failure; and
calculating an avoidance time before which the failed wireless
communications system is unusable, the avoidance time equal to a current time plus
6 the avoidance duration,
wherein the avoidance criterion includes the avoidance time.

2 7. The method of Claim 6 wherein the avoidance criterion is satisfied if
the stored avoidance time is greater than the current time.

2 8. The method of Claim 7 wherein the step of assigning an avoidance
duration comprises the steps of:

4 maintaining a list of detectable wireless communications failures, each
detectable wireless communications failure having a corresponding avoidance
duration;

6 locating the detected system failure in the list of wireless communications
failures; and

8 using the corresponding avoidance duration in the step of calculating.

2 9. The method of Claim 8 wherein the step of detecting includes the step
of detecting failed attempts to acquire and register with the selected wireless
communications system.

2 10. The method of Claim 9 wherein the steps of selecting and attempting
are repeated until the mobile device successfully acquires and registers with the
selected wireless communication.

11. The method of Claim 1 wherein the wireless communications systems
2 are selected from the preferred systems list in a predetermined order of desirability.

12. In a mobile station, a method for marking wireless communications
2 systems as unusable comprising the steps of:

maintaining a list of unusable wireless communications systems, each entry in
4 the list of unusable wireless communications systems including a system identifier
and corresponding avoidance criterion;

6 detecting a communications failure associated with a currently selected
wireless communications system; and

8 adding a record to the stored list of unusable systems, the added record
including an identifier of the currently selected wireless communications system and
10 corresponding avoidance criterion based on the detected communications failure,
wherein the currently selected wireless communications system is unusable while the
12 corresponding avoidance criterion is satisfied.

13. The method of Claim 12 wherein each system identifier is associated
2 with at least one wireless communications system.

14. The method of Claim 12 wherein the step of adding comprises the
2 steps of:

assigning an avoidance duration to the detected communications failure;
4 calculating an avoidance time before which the failed wireless
communications system is unusable, wherein the avoidance time is equal to a current
6 time plus the avoidance duration; and
storing the avoidance time as the corresponding avoidance criterion.

15. The method of Claim 14 wherein the step of assigning an avoidance
2 duration comprises the step of:

maintaining a list of identified wireless communications failures, each wireless
4 communications failure having a corresponding avoidance duration;

6 locating the detected system failure in the list of wireless communications
failures; and
using the corresponding avoidance duration in the step of calculating.

2 16. The method of Claim 15 wherein at least two avoidance durations
stored in the list of identified wireless communications failures have different values.

2 17. A mobile station comprising:
a memory storing a preferred roaming list, the preferred roaming list
including a first plurality of system identifiers and corresponding acquisition
4 parameters; and
processing circuitry adapted to create and maintain a list of unusable
6 systems, the list of unusable systems being stored in the memory and including a
second plurality of system identifiers and corresponding avoidance criterion,
8 wherein a wireless communications system is unusable if it is
identified by a system identifier in the list of unusable systems and the corresponding
10 avoidance criterion is satisfied.

2 18. The mobile station of Claim 17 wherein the processing circuitry
comprises:
a system determination unit adapted to select wireless communications
4 systems from the preferred roaming list in accordance with a predetermined system
acquisition procedure and attempt to acquire selected wireless communications
6 systems that are usable.

2 19. The mobile station of Claim 18 wherein the processing circuitry is
further adapted to detect communications failures with selected wireless
communications systems, and in response to a detected communications failure, add
4 an entry to the list of unusable systems, the entry including a system identifier for the
selected wireless communications system and an avoidance time, the avoidance time
6 indicating a duration during which the selected wireless communications system is
unusable.

20. The mobile station of Claim 19 further including a clock, wherein the
2 memory further includes a list of communications failures, each communications
failure having a corresponding avoidance duration, and
4 wherein the avoidance time equals a current time as measured by the
clock plus the avoidance duration for the corresponding communications failure.

21. The mobile station of Claim 20 wherein the processing circuitry is further
2 adapted to delete an entry from the list of unusable communications systems when the
corresponding avoidance time is less than the current time.